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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/560,269	04/26/2000	Barry M. Nolte	777.344US1	2518

7590 11/13/2006

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EXAMINER	
RUTTEN, JAMES D	

ART UNIT	PAPER NUMBER
2192	

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/560,269	NOLTE, BARRY M.	
	Examiner	Art Unit	
	J. Derek Rutten	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,5,7-16,20,22-31,35 and 37-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,5,7-16,20,22-31,35 and 37-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/20/2006 has been entered. Claims 1, 5, 7-10, 12-16, 20, 22-28, 31, 35, 37-39, 42, and 43 have been amended. Claims 1,

Response to Arguments

2. On pages 16-18 filed 10/20/06, with respect to claims 1, 12, and 31, Applicant essentially argues that the prior art does not disclose "eliminating the probe location at the end of the first called function and eliminating the probe location at the end of the second called function when the first called function calls the second called function and when the second called function returns to the calling function." This argument is not persuasive, since this is obvious over the combination of Angel in view of Muchnick as addressed in the rejection of claims 1, 12, and 31 below.

3. On pages 18-21 filed 10/20/06, with respect to claims 16, 27, and 42, Applicant essentially argues that the prior art of record does not disclose ""determining whether the first called function is one of: an internal called function and an external called function, and eliminating the probe location in the calling function at the beginning of the call to the first

called function and eliminating the probe location in the calling function at the end of the call to the first called function when the first called function is an internal called function." This argument is not persuasive, since this is obvious over the combination of Angel in view of Muchnick as addressed in the rejection of claims 16, 27, and 42 below.

Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "internal called function" (e.g. claim 16 lines 17-18) and the "external called function" (e.g. claim 16 line 18) must be shown or the features canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Claims 16, 27, and 42 contain the limitations "internal called function" and "external called function" (e.g. claim 16 lines 17, 18, and 23). However, there is no discussion in the specification regarding "internal" or "external" called functions as claimed. Rather, page 10 lines 12-13 suggest that simple elimination of probe pairs "only works in the case of direct calls to functions within the current module". For the sake of further prosecution, an internal called function will be interpreted as "direct calls to functions within the current module," while external called functions will be interpreted as function calls outside of the current module. The specification should be amended to provide antecedent support for these new claim limitations.

Claim Objections

6. Claims 1, 27, and 31 are objected to because of the following informalities: Claims 1 and 31 do not end with a period. Claim 27 contains a period after the word "function" in line 21, but contains subsequent limitations. See MPEP 608.01(m). Appropriate correction is required.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1, 8, 16, 23, 31, and 38 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 1 is directed to a "computer-implemented method for collecting information," and then sets forth the method in terms of a determination of probe locations. However, there is no practical application to provide a tangible result in such a determination. A process claim must set forth a practical application of a Sec. 101 judicial exception to produce a real-world result. *Benson, 409 U.S. at 71-72, 175 USPQ at 676-77* (invention ineligible because had "no substantial practical application."). In this case, the method steps of "identifying" and "eliminating" are simply abstract steps necessary for the steps of inserting probes at the determined locations and collecting execution information using the inserted probes as provided in claims 10 and 12 for example. The combination of the determination step with such insertion and collection steps provides the established real-world results described in the specification (see page 2 lines 11-19). Therefore, claims 10 and 12 are considered statutory, while claim 1 is not. Independent claims 16 and 31 are rejected for the same reasons as claim 1. Likewise, dependent claims 8, 23, and 38 are rejected for failing to resolve the deficiencies of their respective parent claims. See MPEP 2106.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

10. Claims 1, 5, 7-15 and 31, 35, and 37-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention.

11. Independent claim 1 includes limitations related to identifying probe locations in an application which essentially includes a calling function, a first called function, and a second called function, where the calling function calls the first called function which calls the second called function, and with probe locations at the beginning and end of the first and second called functions, at the beginning only of the calling function, and surrounding the call in the calling function to the first called function. An interpretation of claim 1 (with mapping claim line numbers) results in the following pseudo-code representation:

```
calling_function {
      _EnterFunction();        /* Line 6 */
      …
      _CallToFunction();       /* Lines 10-11 */
      firstCalledFunction();   /* Lines 11, 13, and 14 */
      _ReturnFromFunction();   /* Lines 13-14 */
      …
      _ExitFunction();         /* Line 7 */
}

firstCalledFunction {
      _EnterFunction();        /* Line 8 */
      …
      secondCalledFunction(); /* Lines 19-20 */
      …
      ~~_ExitFunction();~~         /* Lines 9 and 18 */
}

secondCalledFunction {
      _EnterFunction();        /* Line 15 */
      …
      ~~_ExitFunction();~~         /* Lines 17 and 19 */
      return to callingFunction; /* Lines 20-21 */
}
```

Lines 19-21 of claim 1 recite "when the first called function calls the second called function and when the second called function returns to the calling function." Since the second called function returns to the calling function instead of to the first called function, this arrangement is interpreted as the "tail merge" optimization which is described on page 10 line 25 through page 11 line 26 of the originally filed specification, and which is provided by the Applicant in support the amendment (e.g. see pages 16 and 17 filed 10/10/06). As described in the specification, function calls are eliminated by instead "jumping to the next function, then having a single return statement return out of multiple functions" (see page 10 lines 27-30). However, the claims are directed to instances when "the first called function *calls* the second called function" (emphasis added, see claim 1 lines 19 and 20). Thus the claims require a call from the first called function to the second called function that returns not to the first called

function, but to the calling function. While describing the *replacement* of a function call with a jump to a second called function that returns to the calling function, the specification does not describe a *function call* to a second called function that returns not to the calling function, but to another function. Independent claims 12 and 31 contain similar language and are rejected for the same reasons. Likewise, dependent claims 5, 7-11, 13-15, 35, and 37-41 are rejected as being dependent upon a rejected base claim. For the purpose of further examination, the "call" to the second called function will be interpreted as a jump.

12. Claim 1 contains the following clause:

> eliminating the probe location[s] ... **when** the first called function calls the second called function and **when** the second called function returns to the calling function [emphasis added]

However, the specification does not provide a discussion of elimination of probe locations "when" the functions are called, i.e. at runtime. Page 13 lines 1-6 provides support for inserting probes prior to but not during application execution. Independent claims 12 and 31, and dependent claims 5, 7-11, 13-15, 35, and 37-41 are rejected for the same reasons.
For the purpose of further examination, the word "when" in the claim will be interpreted in the spirit of an abstract control flow as "where".

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 1, 8, 16, 23, 31, and 38 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: inserting probes, and collecting information with the probes. For example, the abstract of claim 1 recites a "method for collecting

information." However, no information collection step is recited in the claim. Claims 8, 16, 23, 31, and 38 are rejected for the same reason.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. Claims 1, 10-12, 16, 25-27, 31, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over prior art of record U.S. Patent Number 6,314,558 to Angel et al. (hereinafter "Angel") in view of "Advanced Compiler Design and Implementation" by Muchnick (hereinafter "Muchnick").

In regard to claim 1, Angel discloses:

A computer-implemented method for collecting information relating to execution of an application (See Fig. 10), *the method being executed on a computer, the method comprising:*

determining a set of probe locations in the application, (e.g. "selecting", Column 3, lines 16-20), *wherein determining a set of probe locations includes:*

identifying a probe location at a beginning of a calling function, See column 22 lines 26-27:

> Processing begins at a step 442 where the **entry of the method is instrumented.** [emphasis added]

identifying a probe location at an end of the calling function, See column 23 lines 10-13:

> If it is determined at the test step 458 that an exit point for the method has been reached, then control passes from the test step 458 to a step 460 where the **exit point is instrumented**. [emphasis added]

identifying a probe location at a beginning of a first called function, See column 22 lines 26-27 as cited above.

identifying a probe location at an end of the first called function, See column 23 lines 10-13 as cited above.

identifying a probe location in the calling function at the beginning of a call to the first function, See column 13 lines 48-51:

> **Function calls and returns may be instrumented** for a variety of purposes, including keeping track of variables becoming defined or undefined in connection with function calls and returns. [emphasis added]

identifying a probe location in the calling function at the end of the call to the first function, See column 13 lines 48-51 as cited above.

identifying a probe location at a beginning of a second called function See column 22 lines 26-27 as cited above.

identifying a probe location at an end of a second called function See column 23 lines 10-13 as cited above.

eliminating the probe location at the end of the first called function and eliminating the probe location at the end of the second called function E.g. "optimization," column 13 lines 9-15. Angel discloses probe optimization by analyzing the "effective scope" of code blocks. Probe locations that correspond with scope changes that have minimal effect on monitoring variable operations can be eliminated from the set

of locations to instrument. Also see column 14 lines 33-37, "identifying labels that do not require instrumentation ... because all jumps to those labels are from code having the same effective scope as the code corresponding to the label."

Angel does not expressly disclose: *when the first called function [jumps to]the second called function and when the second called function returns to the calling function*. However, Muchnick describes an optimization called "tail merging" which detects redundant code and eliminates it. See section 18.8 on pages 590 and 591:

> What the optimization does is to replace the matching instructions of one of the blocks by a branch to the corresponding point in the other.

This optimization results in a second called function that returns directly to the calling function instead of the first called function. Further, Muchnick illustrates (see FIG. 18.14 on page 591) that a tail merge has minimal effect on variable operations, since the branch uses the same variable operations as the eliminated code. It would have been obvious to one of ordinary skill to use Muchnick's tail merging with Angel's probe instrumentation in order to optimize code as suggested by Muchnick.

In regard to Claim 10, Angel teaches inserting probes in the probe locations that were not eliminated to collect the information relating to the execution of the application (Column 15, lines 45-50, e.g. "subsequent instrumentation").

In regard to Claim 11, Angel discloses analysis of collected data (column 16 lines 37-47.

In regard to claim 12, Angel discloses:

A computer-readable storage medium having an application including computer-executable instructions, the computer-executable instructions (see column 5 lines 39-41, e.g. "storage") *comprising:*

...

determining whether probe locations produces redundant information; eliminating a probe location when a probe location produces redundant information; As noted in the above rejection of claim 1, Angel's teaching of "effective scope" is directly related to the elimination of redundant information. See Angel column 13 lines 9-15.

...

collecting non-redundant information relating to the execution of the application using the inserted probes. Since Angel's "effective scope" eliminates redundant probes, non-redundant information will be collected.

All further limitations have been addressed in the above rejection of claims 1, 10, and 11.

In regard to claim 16, Angel discloses:

determining whether the first called function is one of: an internal called function See column 13 lines 11-15, e.g. "effective scope," *and an external called function,* See column 12 lines 60-62, e.g. "scope change".

eliminating the probe location in the calling function at the beginning of the call to the first called function and eliminating the probe location in the calling function at

the end of the call to the first called function when the first called function is an internal called function. See column 13 lines 9-17, e.g. "optimization".

All further limitations have been addressed in the above rejection of claim 1.

In regard to claims 25 and 26, the above rejection of claim 16 is incorporated. All further limitations have been addressed in the above rejection of claims 10 and 11, respectively.

In regard to claim 27, Angel discloses *A computer-readable storage medium having an application including computer-executable instructions...* See column 5 lines 46-48, e.g. "storage device". All further limitations have been addressed in the above rejection of claims 12 and 16.

In regard to claim 31, Angel discloses *A computer system comprising a processor that is arranged to execute computer-executable instructions* See column 5 lines 24-29 and 46-48, e.g. "computer system" and "processor." All further limitations have been addressed in the above rejection of claim 1.

In regard to claims 40 and 41, the above rejection of claim 31 is incorporated. All further limitations have been addressed in the above rejection of claims 10 and 11, respectively.

In regard to claim 42, all limitations have been addressed in the above rejection of claims 12, 16, and 31.

17. Claims 5, 7, 13, 14, 20, 22, 28, 29, 35, 37, 43 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angel and Muchnick as applied in the above rejection of claim 1, and further in view of prior art of record Whygodny (U.S. Patent Number 6,282,701), prior art of record Miller (U.S. Patent Number 6,438,512) and prior art of record O'Donnell (U.S. Patent Number 6,374,369).

In regard to Claim 5, the above rejection of claim 1 is incorporated. Angel discloses inserting probes. See Abstract, e.g. "instrumenting." Angel does not expressly teach that a first probe is configured to collect an address of the first and second called functions, a first stack pointer, and a first time indicator, and wherein a second probe is configured to collect the address of the second called function, a second stack pointer, and a second time indicator. Whygodny, however, does teach a method of monitoring and analyzing a computer program using tracing, where the trace data collected comprises "function calls (including the assembly address of the called function)" and "function return values (including function address)" (Column 29, lines 6-9). Whygodny does not teach collecting a stack pointer or a time indicator. O'Donnell, however, does teach collecting starting and ending times before and after a function call (Column 1, lines 45-49). O'Donnell does not teach collecting a stack pointer. Miller, however, does teach monitoring a program's performance by periodically interrupting program flow, and calling a function that returns a stack (Column 3, lines 10-11). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of claim 1, further configure two probes for monitoring program performance,

both probes collecting the addresses of the calling and called function as taught by Whygodny, a stack pointer as taught by Miller, and a time indicator as taught by O'Donnell, since gathering as much data as possible aids in better program analysis.

In regard to Claim 7, the above rejection of claim 1 is incorporated. Angel discloses inserting probes. See Abstract, e.g. "instrumenting." Angel does not expressly teach that a first probe is configured to collect an address of the calling function, an address of the first called function, a first stack pointer, and a first time indicator, and wherein a second probe is configured to collect the address of the first called function, a second stack pointer, and a second time indicator. Whygodny, however, teaches a method of monitoring and analyzing a computer program using tracing, where the trace data collected comprises "function calls (including the assembly address of the called function)" and "function return values (including function address)" (Column 29, lines 6-9). Whygodny does not teach collecting a stack pointer or a time indicator. O'Donnell, however, does teach collecting starting and ending times before and after a function call (Column 1, lines 45-49). O'Donnell does not teach collecting a stack pointer. Miller, however, does teach monitoring a program's performance by periodically interrupting program flow, and calling a function that returns a stack (Column 3, lines 10-11). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of claim 1, and further configure two probes for monitoring program performance, both probes collecting the addresses of the calling and called function as taught by Whygodny, a stack pointer as taught by Miller, and a time

indicator as taught by O'Donnell, since gathering as much data as possible aids in better program analysis.

In regard to claims 13 and 14, the above rejection of claim 12 is incorporated. All further limitations have been addressed in the above rejection of claims 5 and 7, respectively.

In regard to claims 20 and 22, the above rejection of claim 16 is incorporated. All further limitations have been addressed in the above rejection of claims 5 and 7, respectively.

In regard to claims 28 and 29, the above rejection of claim 27 is incorporated. All further limitations have been addressed in the above rejection of claims 5 and 7, respectively.

In regard to claims 35 and 37, the above rejection of claim 31 is incorporated. All further limitations have been addressed in the above rejection of claims 5 and 7, respectively.

In regard to claims 43 and 44, the above rejection of claim 42 is incorporated. All further limitations have been addressed in the above rejection of claims 5 and 7, respectively.

18. Claims 8, 23, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angel and Muchnick, and further in view of prior art of record Yellin (U.S. Patent Number 5,761,513).

In regard to Claim 8, the above rejection of claim 1 is incorporated. Angel further shows placing instrumentation code in the presence of a 'throw' operation (Figure 18 and Column 25, lines 20-34). Angel does not expressly show placing instrumentation code at the beginning and end of a block of code, where the block of code is where the application is directed to in the occurrence of an error. However, Yellin teaches that "an exception handler 100 is a procedure" and is "executed whenever the applicable exception gets thrown during execution" (Column 1, lines 15-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to place instrumentation code at the beginning and end of the exception handing function as taught by Angel, where the exception handling function is a block of code to which execution of an application is directed upon in the occurrence of an error, since this would allow for the collection of data during an exception.

In regard to claim 23, the above rejection of claim 16 is incorporated. All further limitations have been addressed in the above rejection of claim 8.

In regard to claim 38, the above rejection of claim 31 is incorporated. All further limitations have been addressed in the above rejection of claim 8.

19. Claims 9, 15, 24, 30, 39, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angel, Muchnick and Yellin as applied to claim 8 above, and further in view of Whygodny, Miller, and O'Donnell.

In regard to Claim 9, the above rejection of claim 1 is incorporated. Angel discloses inserting probes. See Abstract, e.g. "instrumenting." Angel does not expressly teach that the first probe is configured to collect an address of the block of code, a first stack pointer, and a first time indicator, and the second probe is configured to collect the address of the block of code, a second stack pointer, and a second time indicator. Whygodny, however, does teach a method of monitoring and analyzing a computer program using tracing, where the trace data collected comprises "function calls (including the assembly address of the called function)" and "function return values (including function address)" (Column 29, lines 6-9). Whygodny does not teach collecting a stack pointer or a time indicator. O'Donnell, however, does teach collecting starting and ending times before and after a function call (Column 1, lines 45-49). O'Donnell does not teach collecting a stack pointer. Miller, however, does teach monitoring a program's performance by periodically interrupting program flow, and calling a function that returns a stack (Column 3, lines 10-11). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 8, and further configure two probes for monitoring program performance, both probes collecting the addresses of the calling and called function as taught by Whygodny, a stack pointer as

taught by Miller, and a time indicator as taught by O'Donnell, since gathering as much data as possible aids in better program analysis.

In regard to claim 15, the above rejection of claim 12 is incorporated. All further limitations have been addressed in the above rejection of claims 8 and 9.

In regard to claim 24, the above rejection of claim 23 is incorporated. All further limitations have been addressed in the above rejection of claim 9.

In regard to claim 30, the above rejection of claim 27 is incorporated. All further limitations have been addressed in the above rejection of claims 8 and 9.

In regard to claim 39, the above rejection of claim 38 is incorporated. All further limitations have been addressed in the above rejection of claim 9.

In regard to claim 45, the above rejection of claim 42 is incorporated. All further limitations have been addressed in the above rejection of claims 8 and 9.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. Derek Rutten whose telephone number is (571)272-3703. The examiner can normally be reached on T-F 6:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on (571)272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jdr

TUAN DAM
SUPERVISORY PATENT EXAMINER